

**WHAT IS CLAIMED IS:**

- 1 1. A method including:
  - 2 generating a first check word based on incoming data;
  - 3 generating a second check word based on stored data;
  - 4 comparing the first check word to the second check word;
  - 5 generating a comparison result; and
  - 6 indicating a failure based on the comparison result.
- 1 2. The method of claim 1 wherein generating the second check  
2 word occurs at a time subsequent to the data being stored  
3 and prior to the data being overwritten.
- 1 3. The method of claim 1 further comprising:
  - 2 generating the second check word during periods of time
  - 3 when the device storing the data is in an idle state.
- 1 4. The method of claim 1 further comprising:
  - 2 synchronizing the generation of the second check word to
  - 3 the reading and writing of the data.
- 1 5. The method of claim 1 wherein generating the second check  
2 word further comprises reading bytes from a selected set of  
3 memory locations.
- 1 6. The method of claim 5 wherein the selected set of memory  
2 locations includes memory locations included in a single  
3 memory.
- 4 7. The method of claim 5 wherein the selected set of memory  
5 locations includes memory locations included in multiple  
6 memories.

7 8. The method of claim 7 further comprising reading the  
8 multiple memories simultaneously.

9 9. The method of claim 1 wherein the first check word is  
10 stored in a write accumulator.

1 10. The method of claim 1 wherein the second check word is  
2 stored in a read accumulator.

1 11. A method comprising:  
2 generating a first check word based on incoming data to a  
3 subset of a plurality of memories;  
4 reading a set of data stored in the subset of the memories;  
5 generating a second check word based on the set of data;  
6 comparing the first check word to the second check word;  
7 generating a comparison result; and  
8 indicating a failure based on the comparison result.

1 12. The method of claim 11 wherein reading a set of data  
2 stored in the predetermined subset of the memories includes  
3 reading data from multiple memories simultaneously.

1 13. A computer program product tangibly embodied on a  
2 computer readable medium, for checking contents of a memory  
3 in network switching environment comprising instructions  
4 for causing a computer to:  
5 generate a first check word based on incoming data;  
6 generate a second check word based on stored data;  
7 compare the first check word to the second check word;  
8 generate a comparison result; and  
9 indicate a failure based on the comparison result.

1 14. The computer program product of claim 13 further  
2 comprising instructions to:  
3 generate the second check word at a time subsequent to the  
4 data being stored and prior to the data being overwritten.

1 15. The computer program product of claim 13 further  
2 comprising instructions to:  
3 generate the second check word during periods of time when  
4 the device storing the data is in an idle state.

1 16. The computer program product of claim 13 further  
2 comprising instructions to:  
3 synchronize the generation of the second check word to the  
4 reading and writing of the data.

1 17. The computer program product of claim 13 further  
2 comprising instructions to:  
3 generate the second check word by reading bytes from a  
4 selected set of memory locations.

1 18. The computer program product of claim 13 further  
2 comprising instructions to:  
3 read multiple memories simultaneously.

1 19. The computer program product of claim 13 further  
2 comprising instructions to:  
3 store the first check word in a write access generator.

1 20. The computer program product of claim 13 further  
2 comprising instructions to:  
3 store the second check word in a read access generator.

1 21. A computer program product tangibly embodied on a  
2 computer readable medium, for checking contents of a set of  
3 memories in network switching environment comprising  
4 instructions for causing a computer to:  
5 store data in multiple memories;  
6 generate a first check word based on incoming data to a  
7 predetermined subset of the memories;  
8 read a set of data stored in the predetermined subset of  
9 the memories;  
10 generate a second check word based on the set of data;  
11 compare the first check word to the second check word;  
12 generate a comparison result; and  
13 indicate a failure based on the comparison result.

1 22. The computer program product of claim 21 further  
2 comprising instructions to:  
3 generate the second check word at a time subsequent to the  
4 data being stored and prior to the data being overwritten.

1 23. The computer program product of claim 21 further  
2 comprising instructions to:  
3 generate the second check word during periods of time when  
4 the device storing the data is in an idle state.

1 24. The computer program product of claim 21 further  
2 comprising instructions to:  
3 synchronize the generation of the second check word to the  
4 reading and writing of the data.

1 25. The computer program product of claim 21 further  
2 comprising instructions to:

3       generate the second check word by reading bytes from a  
4       selected set of memory locations.

1    26.   The computer program product of claim 21 further  
2       comprising instructions to:  
3       read multiple memories simultaneously.

1    27.   The computer program product of claim 21 further  
2       comprising instructions to:  
3       store the first check word in a write accumulator.

1    28.   The computer program product of claim 21 further  
2       comprising instructions to:  
3       store the second check word in a read accumulator.